

Siemens MMC (Pengerang Cogeneration Project) - UGE Neutralization Tank

Track record 2017

Location of application

Pengerang, Johor, Malaysia

Products/system used

Ceilcote® 242MR

Applicator

Hydra Admiral Engineering

Fabricator

MMC

Project size

1,200m²



Hes Obruk Hydro Power plant

Track record 2016

Location of application

Turkey

Products/system used

Internal system for Snail, Draft tube & Wicked gates
Polibrid® 705E @ 1,500µm

Project owner

Euaş Obruk Hes İşletmesi

Applicator

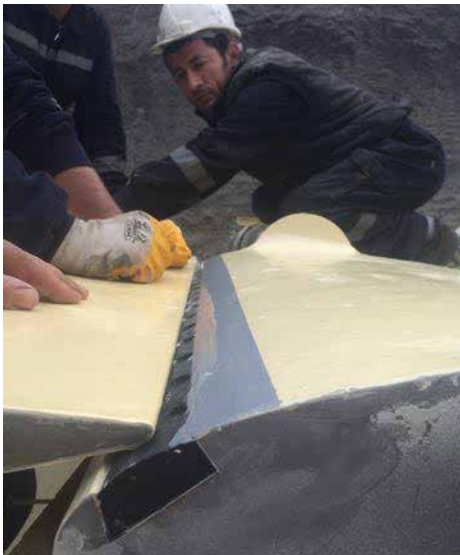
Enviroprotect A.Ş.

ISO12944 environment

C5 I

Project size

1,500m² (16,146ft²)



Shepard Energy Station

Track Record 2014

Location of project

Calgary, Canada

Product/system used

Area 1 - Exterior
Interkote® 1560

Project owner

Enmax

Applicator

Park Derochie Inc

ISO12944 environment

C-5M

Surface preparation

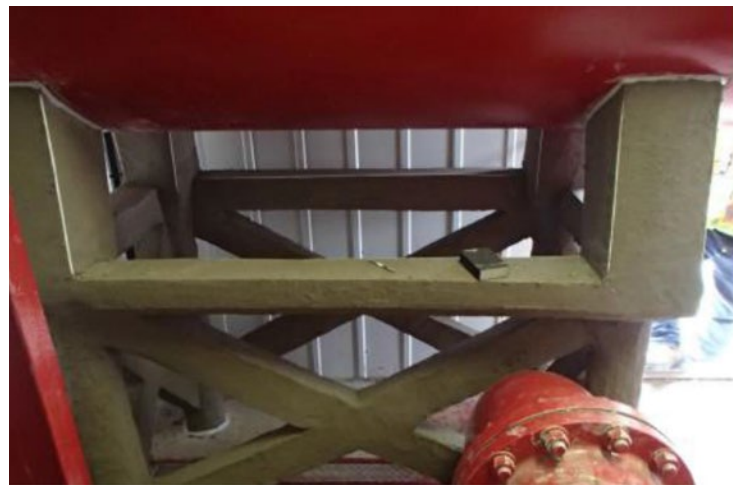
SP-10

Total volume

1,176 lbs (553 kg)

Total area

approximately 300 sq ft (27.8 m²)



Adani Power Plant Project (SEZ)

Track record 2009

Location of project

Mundra, India

Products/system used

Power house building package

Interseal® 670HS @ 100µm

Interchar® 963 @ 500µm

Interthane® 990 @ 50µm

Project owner

Adani Power Limited

Applicator/Fabricator

Shandong TIEJUN Electric Power
Engineering Co.LTD.

ISO12944 environment

C5-M

Project size

4,000MW



Ranhill Powertron II 190MW Power Plant Water Tank

Track record 2010

Location of project

Kota Kinabalu, Sabah, Malaysia

Products/system used

Interseal® 670HS, Interthane® 990

Project owner

Ranhill Powertron II Sdn Bhd

Applicator

Strive Force Sdn Bhd

Fabricator

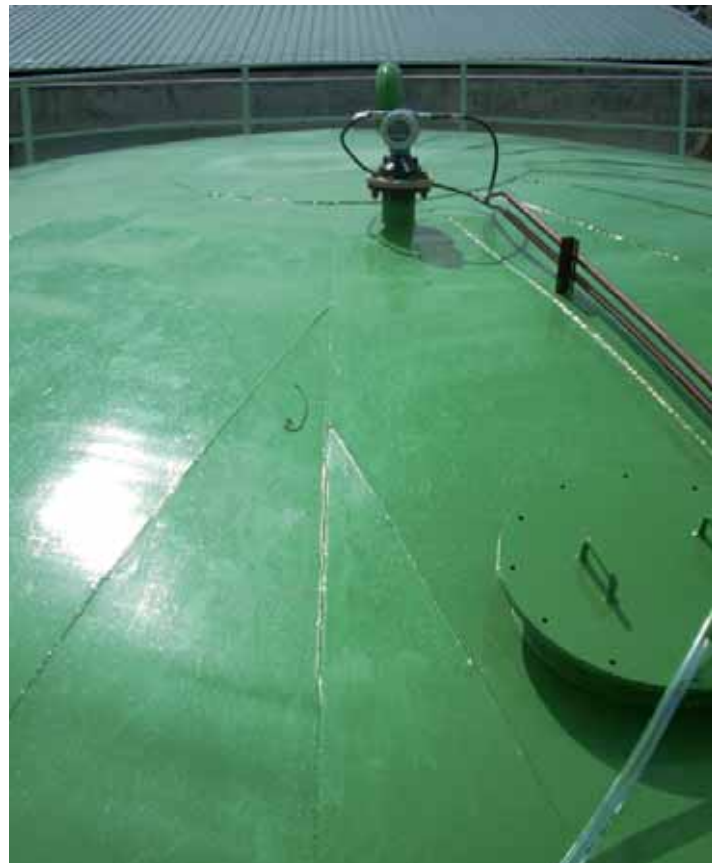
China National Electric
Equipment Corporation

ISO12944 environment

C4

Total area

383m² (4,123ft²)



Jimah 2 x 700MW Coal Fired Power Plant

Track record 2008

Location of project

Port Dickson, Negri Sembilan, Malaysia

Products/system used

Ceilcote® 242MR Flakeline
Ceilcote 662 Flakeline

Project owner

Jimah Energy Venture Sdn Bhd

Applicator

Chemiekote Services Sdn Bhd

ISO12944 environment

C1

Total volume

2 units x 7,004 litres (1,540 gals)

Total area

2 units x 1,540m² (33,150ft²)



Ginna Nuclear Generating

Track record 2010

Location of project

USA

Products/system used

Two coats Intergard® 264
One coat Intersleek® 731
One coat Intersleek 970

Project owner

Constellation Energy Group

Applicator/Fabricator

Constellation Fabrication and
Paint Shop Baltimore, MD

ISO12944 environment

C-5 Immersion

Total area

6 steel heater racks MC 10" channels



Ranhill Powertron II 190MW Combined Cycle Power Project

Track record 2010

Location of project

Sabah, Malaysia

Project owner

Ranhill Powertron II Sdn. Bhd.

Applicator

Strive Force Sdn. Bhd.

ISO12944 environment

C4

Total area

1,910m² (20,559ft²)



Diesel tanks (1,650m²)

Products/system used

Intergard® 251 (Red)
Interseal® 670HS (Grey)
Interthane® 990 (Yellow)

Water tanks (260m²)

Products/system used

Interseal 670HS (Grey)
Interseal 670HS (Red)
Interthane 990 (Green)



Charter Street Biomass Power Plant

Track record 2011

Location of project

Madison, USA

Products/system used

Structural steel

Interlac[®] 789 (4µm)

Project owner

University of Wisconsin

Engineer

AECOM

Applicator

Profile Finishing

Fabricator

Skyline Steel

ISO12944 environment

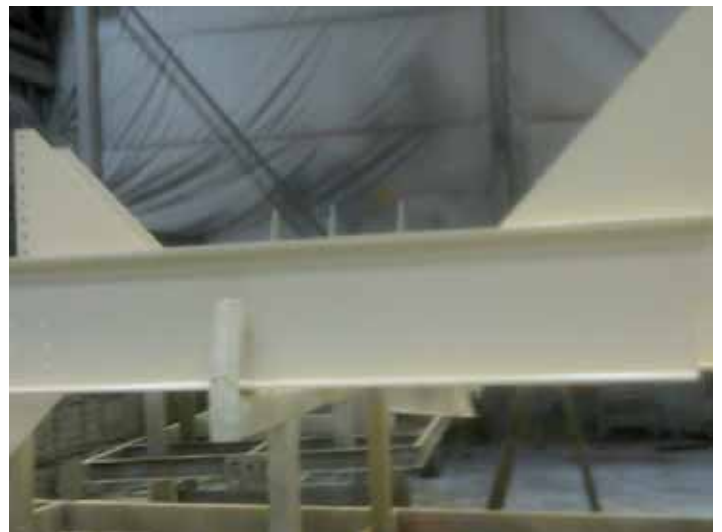
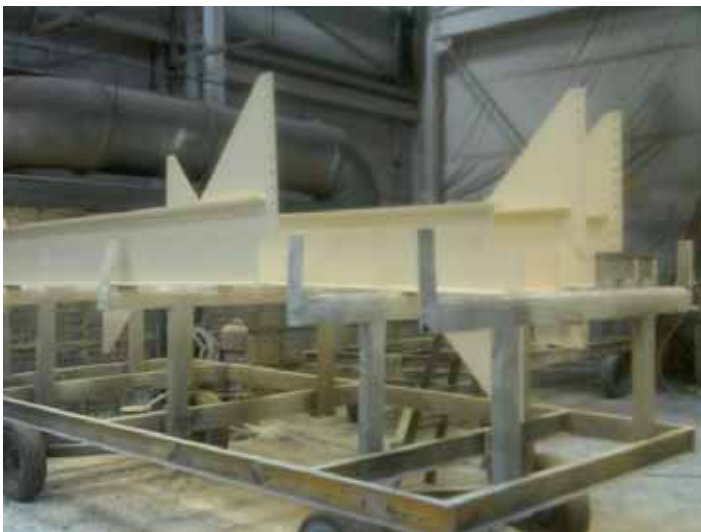
C4

Surface preparation

SP 6

Total area

18,581 m² (200,000ft²)



Siemens Dewatering Bins

Track record 2011

Location of project

USA

Products/system used

Dewatering bins and support steel
Interline® 850 @ 100-150 mils (4-6 µm)
Interline 850 @ 100-150 mils (4-6 µm)

Project owner

Siemens Rothschild Wisconsin

Applicator

Quality Sandblasting

Engineer/Fabricator

Siemens

ISO12944 environment

Immersion

Total volume

250 litres (350 gals)

Total area

9,800m² (25,000ft²)



Bear Gardens

Track record 2010

Location of project

New Canton, Virginia, USA

Products/system used

Area 1 - Exterior Steel

Interzinc® 52 @ 2-3 µm (50-75 mils)

Intergard® 475HS @ 4-8 µm (100-200 mils)

Interthane® 990HS @ 2-3 µm (50-75 mils)

Area 2 - Interior Lining

Interline® 850 @ 4-6 µm (100-150 mils)

Interline 850 @ 4-6 µm (100-150 mils)

Interline 850 @ 4-6 µm (100-150 mils)

Project owner

Dominion Power

Engineer

Fluor

Applicator

Carolina Industrial/Fisher Tank

Fabricator

Fisher Tank

ISO12944 environment

C4

Total area

5,574m² (60,000ft²)



Tumut 3 power station spiral casing & draft tube

Track record 2007

Location of project

Tumut, Australia

Products/system used

Interline® 982, Interline 975

Project owner

Snowy Mountains
Hydro Electric Authority

Applicator

McElligott Partners Pty Ltd

ISO12944 environment

Immersed conditions (tank lining)

Total volume

200 litres (77 gals)

Total area

500m² (5,300ft²)



Rabigh Oil Fired Power Station

Track record 2011

Location of project

Saudi Arabia

Products/system used

Ceilcote® 370HT, Intertherm® 50,
Intergard® 475HS, Ceilcote® 282HB,
Interzinc® 22, Interthane® 990

EPC contractor

Doosan

Packages

Structural steel, tanks
and passive fire protection

Capacity

2,800MW

Total volume

500,000 litres + passive fire protection



Breitburn Energy Diatomite Module 2 Project, T-640 Tank

Track record 2012

Location of project
USA

Products/system used
Area 1 - Exterior
(shell to be insulated)
Bar-Rust® 233H
Devthane® 378H

Area 2 - Tank interior
Enviroline® 405HT LV
Enviroline® 405HT

Project owner
Breitburn Energy

Applicator
West Coast Industrial
Coatings Inc.

ISO12944 environment
C3

Surface preparation
SSPC-SP5

Total volume
947 litres (250 gallons)

Total area
928m² (9,980ft²)



Manzanillo 1 & 2 upgrade

Conversion from a Coal Fired Power Plant to a Gas Fired Power Plant

Track record 2012

Location of project

Mexico

Areas coated

Neutralization pits, trenches, stacks

Products/system used

Ceilcote[®] 2000MR Flakeline,
Intertherm[®] 751 CSA,
Interthane[®] 990, Interseal[®] 670HS,
Interprime[®] 539, Intergard[®] 251,
Intertuf[®] 262

Capacity

600MW

Project owner/Utility

CFE

Main contractor

Dragados

ISO12944 environment

C5-M - Coastal

Total volume

15,000 litres (3,963 gals)



La Yesca Hydroelectric Plant

Track record 2012

Location of project

Tepic, Nayarit, Mexico

Plant type

Hydroelectric

Capacity

750MW

Areas coated

Gates (dry side), high pressure pipe line (interior), turbine power generation components, grids

Products used

Interthane® 990, Interseal® 670HS, Interlac® 665, Interzone® 485, Interprime® 198, Intertuf® 262

Project owner/Utility

CFE

ISO12944 environment

C4

Total volume

30,000 litres (6,600 gals)



I.I.A. Honduras Hydroelectric Pipelines

Track record 2013

Location of project

Honduras

Products/system used

Enviroline[®] 376F-Fast, Interzone[®] 954

Project owner/applicator

I.I.A.

ISO12944 environment

C4, C5i

Project size

20,000m² (215,278ft²) each pipeline



Chana 2 CCGT Power Plant

Track record 2013

Location of project

Thailand

Area coated

Cooling water piping

Pipe cargo

Brackish water/Sea water

Products/system used

Intershield® 300, Intersleek® 737,
Intersleek® 970 (internals),
Interzinc® 22 (externals)

Project owner

Electricity Generating Authority
of Thailand (EGAT)

Paint purchaser

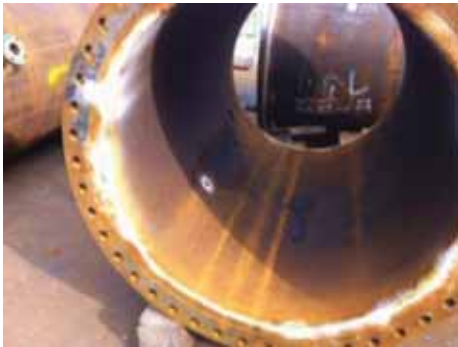
Siemens Power

Plant type

Combined Cycle Gas Turbine (CCGT)

Capacity

800MW



PH Reventazon

Track record 2013

Location of project

Costa Rica

Project owner/applicator

ICE

Products/system used

Area 1

Interzinc® 52 @ 76µm (3 mils)

Intergard® 475HS @ 152µm (6 mils)

Interfine® 979 @ 152µm (6 mils)

Area 2

Interzone® 954 @ 508µm (20 mils)

ISO12944 environment

C4

Total area

80,000m² (861,113ft²)



Higashi Niigata Plant

Case history 2012

Focus product: Intersleek® 700 system

Year of project: 2005

Location: Japan

Project owner: Tohoku Electric Power

ISO 12944 environment: Immersed - IM2

Substrate: Concrete

Asset area: Water outlet pipes

Area covered: 1,600m² (17,222ft²)

The water outlet pipes were inspected in 2012, after 7 years service, and the Intersleek system showed excellent foul release performance. There was only a thin layer of slime which could easily be cleaned off. The life of the outlet pipes before maintenance was required was extended from every 1-2 years to every 8-10 years.



System: Intergard® 740 @ 50µm (2 mils)

Intershield® 300 @ 125µm (5 mils)

Intersleek 737 @ 100µm (4 mils)

Intersleek 757 @ 150µm (6 mils)

Power Plant refurbishment

Case study 2012

Focus products: Intercrete™ 4802, Intercrete 4820, Intercrete 4840

Location: Pocerady, Czech Republic

Project owner: CEZ

Contractor: Česká Voda (Czech Water),
part of the Veolia Group

Project size: 2,100m²



Background

After over 30 years in service, several of the plant's below-ground concrete water tanks were showing signs of degradation. Despite regular maintenance, the existing two-coat fibre reinforced coating had detached in some areas, exposing the concrete substrate and reducing cover. Being underground, the environment was damp, with poor ventilation. Fast-return-to-service was a priority, so there was insufficient time to dry the substrate out, a pre-requisite for conventional coating systems.

The solution

Intercrete offered a complete water-based system for the repair and long term protection of these assets. The surface was hydroblasted to remove the old coating and any damaged concrete. Any exposed rebar was treated with **Intercrete 4871** to prevent further corrosion. Large voids were filled with **Intercrete 4802** rapid-setting repair mortar and the remaining substrate reprofiled using polymer modified fairing coat **Intercrete 4820**. Finally, **Intercrete 4840** high performance epoxy modified cementitious coating was spray-applied in two coats of 1mm, providing a durable solution.

With its tolerance to damp environments and easy application, **Intercrete** provided the ideal fast-return-to-service solution for the customer in this situation.



Hongyanhe Nuclear Plant piping

Track record 2010

Location of project

Dalian City, China

Products/system used

2 x Interzone[®] 954 @ 400µm (16 mils)

Project owner

CGNPC (China Guangdong
Nuclear Power Group)

Applicator

Shenzhen Liwei Anti-corrosion and
Thermal Insulation Technology Co. Ltd

Fabricator

Jiangsu Power Equipment Co. Ltd

ISO12944 environment

IM3



Kildal Kraft Verk

Track record 2013

Location of project
Sørkjosen, Norway

Project owner
Ymber

Products/system used
Outside
Interplus® 356, Interthane® 870
Inside
Interzone® 954

Total area
8,000m² (86,111ft²)



AHK Cyprus

Track record 2013

Location of project

Cyprus

Project owner

National Electric Corporation
of Cyprus-AHK

Products/system used

Interzinc® 22, Interzinc® 52
Interline® 850, Interline® 399
Intergard® 345, Interthane® 990
Intergard® 475HS,
Interseal® 670HS,

Specifier

J&P Overseas

Applicator

Enbit Greece/Cyprus

ISO12944 environment

C5-M

Total volume

60,000 litres (13,198 gals)

Total area

200,000m² (2,152,782ft²)



Boufarik Stack Project

Track record 2014

Location of project

Turkey

Products/system used

System for Stack - Internal

Intergard® 251 @ 70µm (2.8 mils) dft

System for Stack - External

Interzinc® 22 @ 80µm (3.1 mils) dft

Intertherm® 50 @ 25µm (1 mil) dft

Intertherm® 50 @ 25µm (1 mil) dft

System for Structural Steel - External

Intergard® 251 - 50µm (2 mils) dft

Intergard® 475HS - 80µm (3.1 mils) dft

Interthane® 870 - 70µm (2.8 mils) dft

Project owner

Enpro Mühendislik Müşavirlik Taahhüt
ve Dış Tic. A.Ş.

Applicator

Bafor Steel

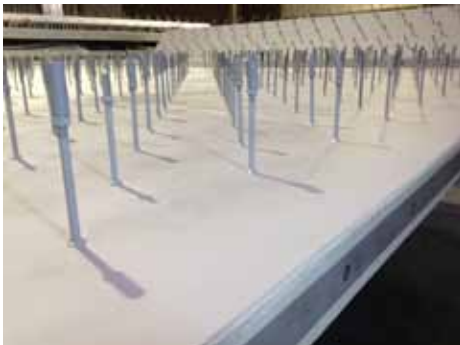
ISO12944 environment

C5-I Heavy Industrial (High Durability)

Project size

11,900m² (128,090ft²)

6,000 litres (1,585 gals)



Eren Enerji FGD Stack

Track record 2014

Location of project

Turkey

Products/system used

System for FGD Stack - Internal

Ceilcote® 282HB - 600µm (23.6 mils) DFT

Ceilcote® 282HB - 750µm (29.5mils) DFT

Project owner

Eren Enerji Elektrik Üretim A.Ş.

Applicator

Bakım Mühendislik

ISO12944 environment

C5-I very high industrial

Project size

6,500m² (69,965ft²)



Ash handling conveyors

Track record 2014

Location of project

Italy

Project owner

Magaldi

Total volume

30,000 litres (6,599 gals)

Products/system used

Interzinc® 22, Interzinc® 42,
Intertherm® 50, Intertherm® 228

ISO12944 environment

C4 - C5I



Puma Energy Mackay Terminal

Track record 2014

Location of project

Australia

Products/system used

Interzinc® 52 @ 75µm (3 mils)
Interplus® 1180 @ 200µm (8 mils)
Interthane® 990 @ 75µm (3 mils)

Project owner

Puma Energy Mackay Terminal

Applicator

IPCQ

Fabricator

CBI

ISO12944 environment

C5

Total area

6 Tanks
(5 @ 25m x 27m; 1 @ 25m x 20m)



Te Mihi Geothermal Power Station

Track record 2012

Location of project

Taupo, New Zealand

Main contractors

McConnell Dowell, Parsons Brinkerhoff,
SNC - Lavalin Joint Venture

Project size

40,000m² (430,556ft²)

Products/system used

Structural steelwork
Interzinc® 42, Interplus® 1180,
Interthane® 990

Intumescent
Interzinc® 42, Interchar® 963,
Interthane® 990, Intercure® 200,
Interchar® 212

Structural steel applicators

Gritblast, Counties Industrial Coatings,
Auckland Abrasive Blasting Coatings,
Taupo Coating Specialists

Intumescent applicators:

Gritblast, Auckland Abrasive Blasting
Coatings, Taupo Coating Specialists



Lausward Gas and Steam Power Plant

Track record 2014

Location of project

Düsseldorf, Germany

Products/system used

Interzinc® 52 and Intergard® 345

Project owner

Stadtwerke Düsseldorf

Specifier

Siemens AG

Applicator

ZÜBLIN Stahlbau

ISO12944 environment

C4

Total volume

40,000 liter (10,567 gals)

Project size

60,000m² (645,835ft²)



Eren Energy Power Plant FGD Stack Relining

Case history 2015

Focus product: Ceilcote® 282 HB @ 2 x 650µm (26 mils)

Year of project: 2014

Location: Turkey

Project owner: Eren Energy Power Plant

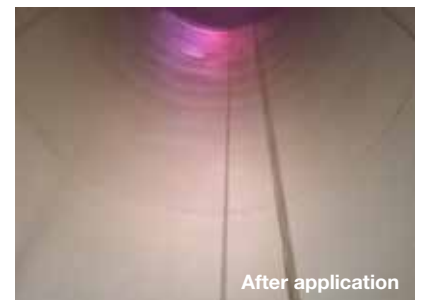
ISO12944 Environment: C5 H

Project size: 6,500m² (69,965ft²)

FGD Stack lining area Inspection/Interplan™ carried out at Eren Energy Power plant on April 2014. High corrosive activity, blistering failures and detachment failures observed on 6,500m² FGD stack walls Internal surfaces.

Ceilcote 282HB application carried out at the Eren Energy Power Plant in Turkey/Zonguldak. Surface preparation and lining application inspected and reported by AkzoNobel Protective Coatings Technical Service. Relining of FGD Stack completed on May 2014.

After one year, first corrosion inspection performed by AkzoNobel Protective Coatings Technical Service on May 2015. These pictures show the coating was still very well after one year in service and there was no evidence of corrosion. This practically demonstrates the abrasion, chemical and heat resistance of Ceilcote 282HB in a coal power plant (FGD Stack) environment.



“It was not easy to perform perfect surface preparation and old, damaged steel was corroded with acids. After one year, Ceilcote 282HB was in good condition and was still tolerating low surface preparation quality.”

Siemens GAD Tank Lining

Track record 2015

Location of project

Turkey

Products/system used

Internal System - Tank Lining:

Interline® 975 @ 2x200µm (8 mils)

External System -

Primer: Interzinc® 52 @ 70µm (3 mils)

Stripe coat: Interseal® 670HS @ 70µm (3 mils)

Mid coat: Intergard® 475HS @ 120µm (5 mils)

Top coat: Interthane® 990 @ 50µm (2 mils)

Project owner

Siemens CCPP Bandırma II

ISO12944 environment

C5-I

Total area

Internal 2,000m² (21,528ft²)

External 2,000m²



GAD Tank Lining Project

Case study 2015

Focus products: Intercrete™ 4872 and Interline® 975

Location: Turkey

Project owner: CCPP II

Applicator: Uyarlar Paint & Blasting

ISO12944 environment: C5

Project size: 2,000m (21,528m²)

Background

Inspection/Interplan™ carried out at CCPP Power plant on August 2015. Design failures observed between tank roof internal steel supports and roof plates as seen in photos.

The solution

It was reported about problem and issue on the roof support construction of the tank. There are gaps between support structures and roof plates, which were not possible to properly fill with coatings. These gaps may lead to premature coatings failure due to crevice corrosion. To prevent such case we would like to advise Intercrete tape application, below system;

Surface preparation: SSPC SP11 – corroded areas (roughening with coarse sand papers on to Interline 975 applied surfaces).

MR system: Intergard® 821 to fill gaps between supports and roof plates.

For tape application: Intercrete 4840 epoxy copolymer primer.

Intercrete 4872 tape.

Intercrete 4842 polymer modified elastomeric cementitious coating.

Corrosion risk of desing failure were taken under control by coating with Intercrete 4872 tape system.

Customer and applicator were satisfied about application and technical trainee of Intercrete 4872 tape sealing system.



KHOMS - 2x275MW GE 9FA Gas Turbine Project

Track record 2015

Location of project

Turkey

Products/system used

System for structural steel
Interzinc® 22 @ 60µm (2 mils)
Interseal® 1052 @ 185µm (7 mils)
Interthane® 990SG @ 75µm (3 mils)

Project owner

Calik Enerji

Applicator

KEMIPAZ ENDUSTRI
SAN. VE TIC. A.S.

ISO12944 environment

C5

Project size

45,000m² (484,376ft²)



Natural Gas Power Plant 770MW - Water treatment concrete lining Track record 2014

Location of project

Turkey

Products/system used

System for concrete surface -
Intercrete™ 4820 @ 2,000µm (80 mils)
Ceilcote® 2000 MR @ 3,000µm (120 mils)

Project owner

Ankara Natural Gas Power Plant

Applicator

Bakım Mühendislik

ISO12944 environment

C5-I

Project size

600m² (6,458ft²)



Demineralized Water and Fire Water Tank Lining

Track record 2015

Location of project

Turkey

Products/system used

Demineralized water tank - internal system
2 x coats Interline® 850 @ 125µm

Fire water tank - internal system

2 x coats Interseal® 670HS @ 125µm

Project owner

Taha Natural Gas Power Plant

Applicator

Uyarlar Kumlama ve Boyama A.Ş.

Project size

1,000m² (10,764ft²)



Gama Khabat Thermal Power Plant Stack Lining

Track record 2015

Location of project

Turkey

Products/system used

Internal system for structural steel -
2 coats Ceilcote® 282HB @ 750µm

Applicator

Çelkonsan A.S.

ISO12944 environment

C5

Project size

2,300m² (24,757ft²)



Aksa Akrilik FGD Lining

Track record 2016

Location of project

Turkey

Products/system used

Ceilcote® 282HB 2x750µm (60 mils)

Project owner

Aksa Akrilik Kimya Sanayi AS

Applicator

Bakım Mühendislik

Project size

750m² (8,073ft²)



Kemerköy Thermal Power Plant

Case history 2016

Kemerköy Thermal Power Plant is located in Muğla, south-western Turkey and it consists of three units, each with a capacity of 210MW. The construction of the plant took place between 1984 and 1993 with two of the units becoming operational in 1994 and the third one in 1995. The annual nominal production capacity of the plant is 4 billion 95 million KWh.

In 2006 the flue gas desulphurization (FGD) units of the Kemerköy plant were coated with the following products: Ceilcote 282, Ceilcote 232, Ceilcote 140 and Ceilcote 180.

In March 2016, 10 years after the application, the first corrosion inspection performed by IP Protective Coatings Technical Service. The inspection showed that the coatings were performing extremely well and the coated surfaces were in a perfect condition with no evidence of corrosion or abrasion.

This practically demonstrates the abrasion, chemical and heat resistance of our Ceilcote products in a thermal power plant (FGD unit) environment.

Focus product: Ceilcote® 282HB FGD linings

Year of project: 2006

Location: Muğla, Turkey

Type of project: FGD unit lining

Project size: 20,000m² (215,278ft²)

